

MOLLUSCA FROM THE HOPE ISLANDS, NORTH
QUEENSLAND.

BY C. HEDLEY, F.L.S.

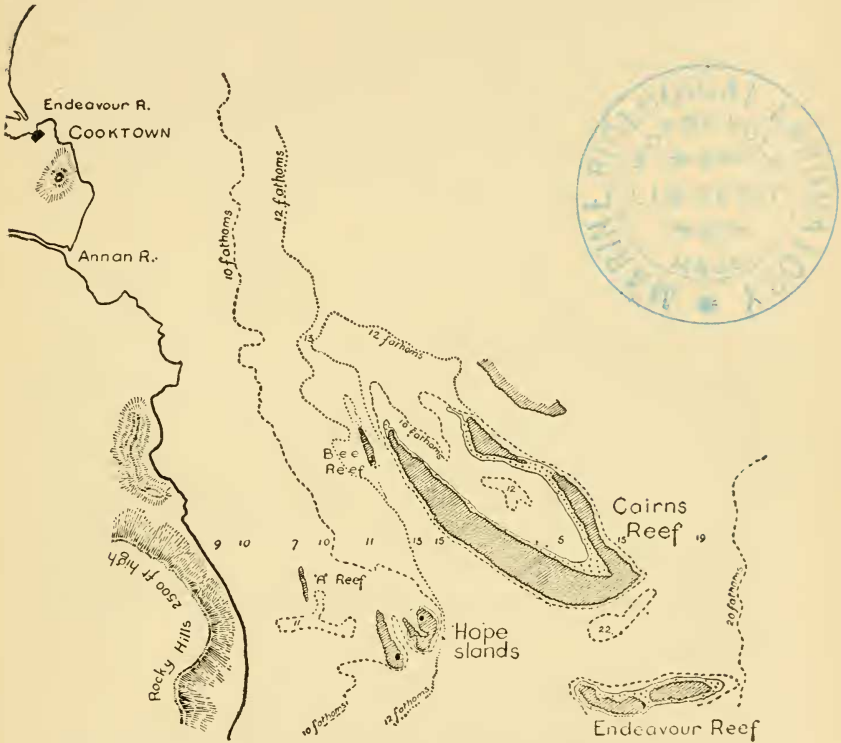
(Plates xxxvi.-xliv.)

A few years ago, I was fortunate in securing the assistance of a party of friends to investigate the south end of the Queensland coral-reef-system. The results (These Proceedings, 1906, p. 453, etc.) were so gratifying, that I was encouraged to continue the study from another point of observation. Accordingly a party consisting of Mr. J. Gabriel, of Melbourne, Mr. T. Griffith Taylor, of the Sydney University, and Mr. A. R. McCulloch, of the Australian Museum, joined me in August, 1906, to examine the reefs about the Sixteenth Parallel.

At Cooktown we engaged the schooner "Lotus," under Capt. McCausland. We first visited the entrance of the Bloomfield River in Weary Bay, and thence sailed across to the Hope Islands. It was my intention to search the outer edge of the Barrier, but rough weather rendered this impossible, and we sought shelter in the lagoon of Cairns Reef, near the Hope Islands. By the courtesy of Mr. W. Howchin, I am permitted to explain the local geography by the following sketch-map, from the Report of the Australasian Association for the Advancement of Science, Vol. xi.

Aided by low spring-tides, we profitably employed our time dredging and shore-collecting. The mode of atoll-formation was

studied by Mr. Taylor and myself. The evidence we gathered and the conclusions at which we arrived were presented to the Adelaide (1907) Meeting of the Association above referred to. From material collected by our party, Mr. F. Chapman made the



SKETCH MAP SHOWING THE GREAT BARRIER REEF AND ADJACENT COAST.

interesting discovery of the microspheric form of *Alveolina*.* Mr. Taylor contributed a humorous account of our travels to the University Journal.†

* Chapman, Journ. Roy. Micros. Soc. Lond. 1908, p.151.

† Taylor, Hermes, Vol.xiii., No.4, Aug. 23, 1907, pp.70-75.

MacGillivray collected on the Hope Islands, from which he records "a species of *Quoyia*."*

Fifty years afterwards Prof. Agassiz's party found here two new planarians.†

Immediately south of Cairns Reef lies the Endeavour Reef, upon which Captain Cook was wrecked. The only record of its fauna I have seen, is a note by Solander in the Catalogue of the Portland Museum, 1786, p.190, nr.4039:—"A very perfect specimen of *Voluta pacifica Solandri*, brought by Capt. Cook, from the Reef off Endeavour River on the Coast of New Holland."‡ But since this species is confined to New Zealand, the record must be a mistake.

Many of the shells already reported from Mast Head Island of course recurred here. Others which we took at or around Hope Islands had previously been reported from North Queensland by the "Chevert," "Challenger," and other expeditions. To economise space, I have not referred to these, but have restricted attention to those either new to science, new to the region, of intricate synonymy, or otherwise noteworthy. Altogether we secured more than seven hundred species. As with the Mast Head collection, many novelties remain undescribed. In the present communication, one hundred species are discussed, half of which are introduced as new to science.

The collection described has been presented to the Australian Museum.

ARCA DAUTZENBERGI Lamy.

Arca dautzenbergi Lamy, Journ. de Conch. lv. 1907, p.232, Pl. iii., f.9,10,11.

This species, an addition to the Australian fauna, is represented by a few odd valves dredged in 8 fathoms, Weary Bay, off the

* MacGillivray, Voy. Rattlesnake, i., 1852, p.104.

† Woodworth, Bull. Mus. Comp. Zool. xxxii. 1898, p.64.

‡ Chemnitz, Conch. Cab. xi. 1795, p.21.

mouth of the Bloomfield River. I had previously taken it, in 15 fathoms, off the Palm Islands.

ARCA WENDTI Lamy.

A. wendti (Schmeltz) Lamy, Journ. de Conch. lv. 1907, p.45, Pl. i., f.11,12,13.

A considerable number of disassociated valves occurred of this small and recently described shell, which is new to Australia. It is conspicuous from the bright primrose-yellow blotches. The largest of my series is only 5 mm. long, half the size of the type.

GLYCYMERIS PECTUNCULUS Linné.

Arca pectunculus Linné, Syst. Nat. x. 1758, p.695; *id.*, Hanley' Ips. Linn. Conch. 1855, p.98. *Pectunculus pectiniformis* Reeve, Conch. Icon. i. 1843, Pl. iii., f.11.

A few separate valves from the Hope Islands are the first notice of this species from Australia.

PECTEN MALDIVENSIS Smith.

Pecten maldivensis Smith, Fauna Maldive and Laccadive Archipel., ii. 1904, p.622, Pl.xxxvi., f.19,20.

I am indebted to Mr. C. J. Gabriel for identifying Hope Island specimens with the type in the British Museum. The species is new to the Australian fauna.

CHLAMYS CORYMBIATUS, n.sp.

(Plate xxxvi., figs.1-4.)

A species of the *Æquipecten* group, small, solid, inflated, almost equilateral, scarcely gaping, left valve shallower. Colour ochraceous mottled with opaque white and chestnut-brown. Sculpture: eighteen prominent ribs parted by deep grooves, the latter densely latticed by thin produced lamellæ. Each rib is tripartite and decorated by small epidermal blisters which resolve into a median, lateral and connecting series. The median and lateral blisters assume the form of imbricating scales, the intermediate ones are like berries. For a space at each side the ribs

are absent. Right anterior auricle ribbed by four spaced nodose riblets, the posterior rayed by half a dozen tuberculate threads. Ctenidium of five teeth. Interior smooth with plicate margins. Height 20; length 20; depth of single valve 7 mm.

Mr. A. Bavay, who kindly examined this species for me, considers that it is a new species related to *C. nux* Reeve. *C. smithi* Sowerby, is also akin. It was an abundant species off the Hope Islands, and seems generally distributed in tropical Queensland, for I took it, in 15 fathoms, off the Palm Islands, and, in 10 fathoms, off Mapoon. Mr. A. U. Henn collected it in anchor-mud from 10½ fathoms off Cape Sidmouth.

MODIOLA AURICULATA Krauss.

Modiola auriculata Krauss, Sudafrik. Moll. 1848, p.20, Pl. ii., f.4; *id.*, Smith, Zool. Coll. Alert, 1884, p.508; *id.*, Jukes Browne, Proc. Malacol. Soc. vi. 1905, p.225; Lamy, Bull. Mus. d'Hist. Nat. Paris, 1906, p.311.

This mussel has not been before noted as Australian. Some living specimens were gathered on the reef.

CUNA PRÆCALVA, n.sp.

(Plate xxxvi., figs.5-8.)

Shell small, solid, rather inflated, equilateral, triangular-cordate. Colour white. The dorsal margins straight, meeting in a right angle, the ventral margin rounded. Sculpture: the umbonal region is peculiarly smooth and flattened. Within it the radial ribs are merely indicated, but without they assume sudden prominence, and in each interstice another radial arises. At the margin these ribs amount to about eighteen; they are parted by rather broader, deep, steep-sided grooves, and on their crests are spaced imbricating scales. The inner margin of the valve is denticulated to correspond with the external sculpture. The right margin develops a pseudo-lateral tooth, fitting against a distant lateral tubercle within the left socket. The socket itself is transversely striated. Height 1.95; length 2.05; depth of single valve 0.75 mm.

The flattened umbo is a good recognition-mark for this species, which occurred abundantly in 5-8 fathoms off the Hope Islands. I took it also in 15 fathoms, off the Palm Islands.

CUNA CAPILLACEA, n.sp.

(Plate xxxvi., figs.9-10.)

Shell small, solid, rather compressed, triangular-cordate. Colour buff-pink. Sculpture: from twelve to fourteen ribs proceed from the prodissoconch regularly to the ventral margin; they are low and rounded, tending to split into a bundle of riblets; their crests are surmounted by reverse imbricating tubercles, which medially are deficient or slightly developed, but on the lateral ribs project as prominent scales. Intervening furrows are wide and flat-bottomed. A concentric sculpture of fine hairlines overruns the whole shell, but is best developed in the furrows. Height 1.9; length 2.05; depth of single valve 0.75 mm.

Numerous specimens, in 5 to 8 fathoms, off the Hope Islands. I previously dredged a few, in 17-20 fathoms, off Mast Head Island.

This species closely resembles *C. præcalva* in size and shape, the colour and comparative smoothness of *C. capillacea* being the most obvious features for separation.

Another member of this family, *Crassatellitidae*, not yet recorded from Queensland, is *Hemidonax donaciforme* Schroeter,* which I have traced as far north as Port Curtis.

CARDITA SEMIORBICULATA Linné.

Chama semiorbiculata Linné, Syst. Nat. x. 1758, p.691; Hanley, Ips. Linn. Conch. 1855, p.87. *Cardita phrenitica* Lamarck,

**Cardium donaciforme* Schroeter, Einl. Conch. iii. 1786, p.68, pl.vii., f.14; *C. donaceum* Spengler, Skr. nat. Selsk., v.(1)1799, p.37; *id.*, Moreh, Malak. Blätt. xvi., 1870, p.120. *Hemicardium donaciforme* Tryon, Am. Journ. Conch. vii. 1872, p. 271; Dall, Trans. Wagn. Free Inst. iii. 1900, p.963. *Donax cardioides* Pritchard & Gatliff, Proc. Roy. Soc. Vict. (2), xvi. 1903, p. 119.

Anim. s. vert. vi. 1819, p.24. *Cardita semiorbiculata* Reeve, Conch. Icon. i., *Cardita*, 1843, Pl. iii., sp.10.

A living specimen was taken on the reef at low-water, and a separate valve was dredged in 5-10 fathoms. It has not been seen before from Queensland, and, but for Lamarck's remark, "Habite . . . la Nouvelle Hollande" in the above citation, I should have claimed it as new for Australia. This is the type of Bolten's subgenus *Beguina*.

CODAKIA REEVEI Deshayes.

Lucina reevei Deshayes, Moll. de Réunion, 1863, p.19, Pl. iii., f.8,9.

On the beach at Hope Island I gathered some specimens which answer fairly to Deshayes' account. They differ by having rather fewer and stronger ribs, and measure 18 mm. as against 25 mm. of the type. The species has not before been noticed from Australia.

PHACOIDES EUCOSMIA Dall.

(Plate xxxvii., fig.16.)

Parvilucina eucosmia Dall, Proc. U.S. Nat. Museum, xxiii., 1901, p.806, new name for *Lucina pisum* Reeve, Conch. Icon. vi., Aug., 1850, *Lucina*, Pl. xi., fig.66a,b; *id.*, Smith, Chall. Rep. Zool. xiii. 1885, p.181 (not *Lucina pisum* Sowerby, Geol. Trans., 2nd ser., iv. 1837, p.341, Pl. xvi., f.14; nor *L. pisum* D'Orbigny, Pal. France, Terr. Cret. iii. 1841, Pl.281, f.3-5; nor *L. pisum* Philippi, Abbild. Besch. iii., April, 1850, p.105, Pl. ii., f.9).

This species did not occur in the Hope Island collection. It is introduced for comparison with other species, and to aid in the perplexities of its nomenclature. The individual figured is 5 mm. long. I dredged it in 5 fathoms, soft black mud, in Van Diemen's Inlet, Gulf of Carpentaria, where the species was abundant. Other localities in the same Gulf, where I met with it, are Mornington and Forsyth Islands, and off the mouth of the Batavia, Horsey, and Norman Rivers. I have not yet found it on the Pacific Coast.

PHACOIDES RUGGUSUS, *nom. mut.*

(Plate xxxvii., fig. 17.)

Lucina (Codakia) seminula Smith, Chall. Rep. Zool. xiii. 1885, p. 180, Pl. xiii., f. 5, 5a: (not *L. seminulum* Deshayes, Anim. s. vert. foss. de Paris, i. 1858, p. 673, Pl. xlv., f. 5-8; nor *L. seminula* Gould, Proc. Bost. Soc. Nat. Hist. viii. 1861, p. 36).

Dr. W. H. Dall, in whose official custody lies the type of *L. seminula* Gould, states* that it is the same as *L. pisum* Reeve. Further, the name itself is preoccupied. It follows that the shell described and figured in the Voyage of the "Challenger" requires a name, which is here supplied. The height of the individual figured is 2.2; length 2.35, and depth of single valve 1.05 mm. Specimens east of Torres Straits seem less densely concentrically ribbed than those from the west. I have taken it with the preceding species in Van Diemen's Inlet, in 15 fathoms, off the Palm Islands, and at Barney Point, Port Curtis. The species is abundant off the Hope Islands.

PHACOIDES SPERABILIS, n.sp.

(Plate xxxvii., fig. 18.)

Shell small, solid, inequilateral, rather inflated and oblique. Colour white. Sculpture: the radials are broad and low, about fourteen in number; sometimes, as in the shell drawn, they run their course unchanged to the margin, in other individuals the ribs multiply by fission or intercalation. The concentric sculpture consists of thin, narrow but erect lamellæ, which overrun both ribs and interstices, usually faint medially but rising into prominence at the sides. Sometimes they are crowded, and sometimes spaced, and may vary in number from fourteen to over twenty. Inner margin of valve finely denticulate. Height 3.15; length 3.25; depth of single valve 1.25 mm.

The variability of both radial and concentric sculpture changes the appearance of this species. The concentric sculpture is,

* Dall, Proc. U.S. Nat. Museum, xxiii., 1901, p. 816.

however, always feebler than in related forms. Off the Hope Islands, in 5-10 fathoms, it was abundant.

MYRTÆA DESIDERATA Smith.

Lucina (Loripes) desiderata Smith, Chall. Zool. Rep. xiii. 1885, p.185, Pl. xiii., f.10.

Numerous valves, both double and single, were dredged in 5-10 fathoms. This is the first note of the species east of Torres Strait.

SPORTELLA JUBATA, n.sp.

(Plate xxxvii., figs.22-23.)

Shell of moderate size, solid, inflated, rather glossy, inequilateral, subrhomboidal. Colour white. Sculpture: extremely fine radiating threads, which increase by intercalation, the median and lateral threads diverging on either side at an acute angle. A few spaced growth-lines intersect the radials. Length 8.5; height 6; depth of single valve 2 mm.

A couple of odd valves, from 5 to 10 fathoms, represent this species.

SPORTELLA SPERABILIS, n.sp.

(Plate xxxvi., figs.13-15.)

Shell small, rhomboidal, compressed, opaque, solid for the size. Colour white. Prodissoconch distinct, smooth. Sculpture: fine regular radiating riblets commence at the prodissoconch-suture as slender threads, diverge and strengthen with growth, a few fork. Those ventrally directed attain the margin, but the lateral ones vanish before reaching the edge. Inner ventral margin denticulated by the sculpture. Length 2; height 2; depth of single valve 0.5 mm.

A few separate valves occurred. In the selection of the genus, not hitherto recorded from Australia, I have been guided by the apparent relation of my shell to *S. obolus* Dall.*

* Trans. Wagner Inst. Sci. iii. 1900, p.1126, Pl. 44, f.18.

ROCHEFORTIA VIATELLATA n.sp.

(Plate xxxvi., figs.11-12.)

Shell thin, long and narrow, a little inequilateral, dorsal and ventral margins straight and parallel, ends rounded. Colour white. Sculpture: regular concentric threads cut into grains by curved obliquely diverging striæ. In the middle of the disk the diverging lines become obsolete. In general appearance the three intersecting curves resemble the pattern called "engine-turned." Length 4.05; height 1.9; depth of single valve 0.6 mm.

The subcylindrical form and intricate sculpture well distinguish this form. There is but a single valve, from 5-10 fathoms.

GALEOMMA DENTICULATA Deshayes.

Galeomma denticulata Deshayes, Moll. de Réunion, 1863, p.19, Pl. xxx., f.1-3.

A single valve, smaller and proportionately higher than the figure, is assigned to this species, which has not before appeared in Australia.

CARDIUM LOBULATUM Deshayes.

Cardium lobulatum Deshayes, Proc. Zool. Soc. 1854(1855), p.332; *id.*, Smith, Fauna Maldivæ, Lacc. Arch. ii. 1906, p.625.

(Plate xxxvii., figs.19-21.)

Mr. C. J. Gabriel identified this, by comparison with the type in the British Museum. A number of separate valves occurred to us in the Cairns lagoon. That now figured is 32 mm. high, 26 mm. long, and 18 mm. deep. Externally cream mottled with brown, internally flesh-pink.

As neither figures nor measurements were given to assist in the identification, the species has remained practically unknown. Tryon* and Hidalgo† have complained of the insufficiency of published data. The worst work, probably the only bad work, Deshayes ever did was that published in London. The deliberate omission of measurements was probably due to the unhappy influence of A. Adams.

* Amer. Journ. Conch. vii. 1872, p.273.

† Mem. R. Acad. Cien. Madrid, xxi. 1903, p.342.

ISOCARDIA MOLTKIANA Gmelin.

Chama moltkiana Gmelin, Syst. Nat. xiii., 1791, p.3303.

A single broken valve came from the Cairns lagoon; some years previously, I took a similar fragment, in 15 fathoms, off the Palm Islands.

I note that Hidalgo* ascribes this name to Spengler in 1783. This reference is inaccessible to me, but since Sherborn omits it from the Index Animalium, I conclude that Spengler's name was not legitimate.

DOSINIA EXASPERATA Philippi.

Cytherea (Artemis) exasperata Philippi, Abbild. und Besch. Conch. iii. 1847, p.36, Pl. viii., f.4; *id.*, Zeit. für Malak. vi. 1849, p.41.

A single valve, dredged in 8 fathoms, in Weary Bay, off the mouth of the Bloomfield River, extends the range of this species to Australia.

GAFRARIUM CATILLUS, n.sp.

(Plate xxxvii., figs.24-27.)

Shell small, lenticular, margin subcircular, slightly produced anteriorly and angled dorsally. Colour dull white, rayed with brown along the sculpture-parting, and the anterior third. Interior white, purple or brown. Sculpture: fine radiating riblets, about forty on the posterior side and a few more on the anterior, which diverge at an acute angle from an oblique parting. The riblets proceeding from the parting curve outwards and broaden, while additional riblets may be intercalated in the interstices. The riblets are broken and beaded by fine concentric growth-lines, while their interstices are roughened by a secondary microscopic vermiculate sculpture. Height 14; length 16; depth of single valve 3 mm.

Plentiful, in 5-10 fathoms, off the Hope Islands. The nearest Australian ally is *G. navigatum* Hedley, from the Capricorn

* Mem. R. Acad. Cien. Madrid, xxi. 1903, p.363.

Islands, which is smaller and more coarsely sculptured. Judging from Roemer's figure, *G. catillus* is more compressed, oblique, and finer sculptured than *G. æquivoca* Chemnitz.

CHIONE LIONOTA Smith.

Venus (Chione) lionota Smith, Chall. Rep. Zool. xiii. 1885, p. 126, Pl. iii., f. 7. *Venus (Chione) infans* Smith, *op. cit.* p. 128, Pl. iii., f. 3.

This species, dredged in 5-10 fathoms, was one of the commonest shells. I found it equally abundant, in 15 fathoms, off the Palm Islands. Considerable variation in sculpture occurs. *C. infans* is a form in which extra radials are intercalated at an early stage.

CHIONE SCANDULARIS, n.sp.

(Plate xxxviii., figs. 28-29.)

Shell solid, ovately triangular, moderately inflated. Anterior margin straight, posterior a little convex, ventral rounded but slightly sinuate posteriorly. Colour dull white or pale yellow, irregularly rayed or spotted with rusty brown. Sculpture: about fifteen spaced concentric lamellæ, which on a posterior ray become more elev ate and almost imbricate, elsewhere thick and low, cut into beads by the passage of crowded radiating costellæ which increase by splitting to about thirty. Lunule and escutcheon sharply defined, crossed by growth-lines only. Margin of the valve within everywhere finely denticulate. Length 15; height 11; depth of single valve 4 mm.

Among Australian species it may be compared with *C. scabra* Hanley, from which its size and coarse sculpture separate it. It was abundant off the Hope Islands. I had previously taken it, in 15 fathoms, off the Palm Islands; and Mr. A. U. Henn obtained it from anchor-mud, in 10½ fathoms, off Cape Sidmouth.

TELLINA ETESIACA, n.sp.

(Plate xxxviii., figs. 30-32.)

Shell minute, thin, diaphanous, glossy, triangular, compressed. Posterior and dorsal margins straight, meeting in a right angle.

Anteriorly rounded, posteriorly subrostrate, with a slight fold. Umbo prominent. Under high magnification a concentric sculpture appears of broken irregular lamellæ and grains which do not extend to the posterior side. Length 2.14; height 1.95; depth of single valve 0.6 mm.

The large number of individuals, approximately equal in size, indicate that the form described is adult. In which case it is the smallest Australian member of its genus.

A conspicuous member of the family, not yet reported from Queensland, is *Macoma candida* Lamarck,* which I have identified from Keppel Bay, Townsville, Cardwell, and Forsyth Island.

TELLINA PHILIPPII Philippi.

Tellina philippii Anton, in Philippi, Abbild. & Besch. Conch. i. p.126, Tellina, Pl.ii, f. 8, June 1844; *id.*, *op. cit.*, ii. 1846, p.94, addendum: *Tellina rastellum* Hanley, Proc. Zool. Soc. 1844, p.59 (Sept. 1844); *id.*, Thes. Conch. i. 1846, p.225, Pl.lxiv., f.2, Pl.lxv., f.242; *id.*, Recent Shells, 1856, p.347, suppl. Pl.14, f.14; *id.*, Bertin, Nouv. Arch. Mus. (2) i. 1878, p.240.

Dating the species from publication, as we must under modern rules, the use of *T. philippii* is obligatory. The older writers, who reckoned from the spoken announcement, considered that *T. rastellum* had priority. The shell, here represented by a single perfect specimen from the Hope Island beach, is new to Australia.

TELLINA REMIES Linné.

Tellina remies Linné, Syst. Nat. x. 1758, p.676; *id.*, Hanley, Ips. Linn. Conch. 1855, p.41; *id.*, Bertin, Nouv. Arch. Mus. (2), i. 1878, p.318.; *id.*, Dall, Trans. Wagn. Inst. iii. pt.5, 1900, p.1012.

Several specimens from the beach at Hope Islands. I had previously taken it on the Pa'm Islands; but, though of usual occurrence, this large species has not been previously noted from Queensland. The synonymous *T. sulcata* was reported by its author† from Shark Bay, W.A., and erroneously from Port Jackson.

* Bertin, Nouv. Arch. Mus. (2), i. 1878, p.342.

† Lamarck, Anim. s. vert. v. 1818, p.528.

ARCOPAGIA ANGULATA Linné.

Tellina angulata Linné, Syst. Nat. xii. 1767, p.1116; Hanley, Ips. Linn. Conch. 1855, p.33. *Arcopagia plicata* Valenc., Bertin, Nouv. Arch. Mus. (2), i. 1878, p.317.

A single valve, from the beach of Hope Island, adds this species to the Australian list. Confusion has occurred between this and another, usually known as *Tellina angulata*, Linné, (as Bertin, *op. cit.* p.330). The latter has been recently distinguished as *T. lamyi* Dautz. & Fischer.*

ARCOPAGIA LINGUA FELIS Linné.

Tellina lingua felis Linné, Syst. Nat. x. 1758, p.674; *id.*, Menke, Moll. Nov. Holl. Spm. 1843, p.41; *id.*, Hanley, Thes. Conch. i. 1846, p.266, Pl.lxiv., f.236.

I had already taken this species at Dunk Island, and at Forsyth Island in the Gulf of Carpentaria; but an example from Hope Island leads me to note that it has not been recorded from Queensland, though not uncommon there.

ARCOPAGIA CARNICOLOR Hanley.

Tellina incarnata Hanley (non Linn.), Proc. Zool. Soc. 1844, p.68. *Tellina carnicolor* Hanley, Thes. Conch. i. 1846, p.263, Pl.lvi., f.15; *id.*, Smith, Fauna Maldive, Lacc. Arch. ii. 1903, p.627. *Arcopagia carnicolor* Bertin, Nouv. Arch. (2) i. 1878, p.322; *id.*, Hidalgo, Mem. R. Acad. Cien. Madrid, xxi. 1903, p.154. *Tellina strangei* Deshayes, Proc. Zool. Soc. 1854 (1855), p.362; *id.*, Hutton, Man. N. Z. Moll. 1880, p.144. *Tellina corbis* Sowerby, Conch. Icon. xvii, 1867, Pl.xxiv., f.127.

A perfect, though dead shell, from the Hope Island beach seems to be the first representative of the species in Australian waters. The ascription of *T. strangei* to New Zealand is an error, as pointed out by Suter.†

* Dautzenberg & Fischer, Journ. de Conch. liv., 1906, p.224.

† Suter, Proc. Malacol. Soc. vii. 1907, p.213.

ARCOPAGIA DAPSILIS, n.sp.

(Plate xxxviii., fig.33.)

Shell small but comparatively solid, oblong-equilateral, the dorsal margins rather straight, meeting at an obtuse angle, where the umbo projects suddenly and rather obliquely; anterior, ventral, and posterior margins rounded. Colour white. The whole surface is minutely reticulated by the intersection of about one hundred fine radial threads, with concentric threads of equal size and space. In addition, there are wide elevated concentric folds, varying from none to a dozen, and which may be evenly distributed over the disk or confined to the first third or so. These coarse folds are traversed without interruption by the finer sculpture. I was unable to detect the pallial scar. Length 2.9; height 2.3; depth of single valve 0.55 mm.

This is the smallest Australian *Arcopagia*; its shape distinguishes it from such small forms as *A. elegantissima* Smith, *A. tenuilamellata* Smith, or *A. fabrefacta* Pilsbry. It seems to be widely distributed in Queensland, for not only did we take it plentifully, in 5-8 fathoms, off the Hope Islands, but I dredged it previously, in 15 fathoms, off the Palm Islands, and, in 17-20 fathoms, off Mast Head Island. Mr. H. L. Kesteven also found it on the beach at Caloundra.

SEMELE ISOCELES, n.sp.

(Plate xxxviii., figs.34-36.)

Shell small, thin, translucent, triangular equilateral, inequivalve, rather inflated. Ventral margin rounded, posterior and anterior margins straight, except that the right anterior margin is more curved. Colour white. Sculpture: about twenty delicate erect concentric lamellæ, irregularly spaced, undeveloped towards the umbo, crowded towards the ventral margin. Length 3.25; height 2.9; depth of single valve 1.1 mm.

This species appeared in abundance. Mr. A. U. Henn also found it in blue mud, adhering to a ship's anchor, in 10½ fathoms, off Bow Reef, near Cape Sidmouth, Queensland. Its nearest

Australian ally is *S. infans* Smith, which occurred with it, in 5-10 fathoms, off the Hope Islands. *S. isosceles* is smaller, more inflated, more solid, more triangular, and is especially distinguished by its concentric sculpture.

THEORA NASUTA, n.sp.

(Plate xxxviii., figs.37-39.)

Shell small, ovate-acuminate, a little inflated, thin and translucent. Rounded on the ventral and anterior margins, posteriorly produced and angled. Colour white. Surface smooth. Length 4.65; height 3.5; depth of single valve 1.25 mm.

Compared with *Theora fragilis* A Adams, this is a smaller shell, proportionately shorter and more sharply beaked. It was a common species at the scene of our dredgings, and I had previously found it as abundant, in 15 fathoms, off the Palm Islands.

DAVILA PLANA Hanley.

Mesodesma planum Hanley, Proc. Zool. Soc. 1843, p.102; *id.*, Reeve, Conch. Icon. viii. 1854, Mesodesma, Pl. iii., f.16; *id.*, Hidalgo, Mem. R. Acad. Cien. Madrid, ii. 1903, p.65. *Davila plana* Dall, Trans. Wagn. Inst. iii. pt.4, 1898, p.913.

This gregarious species lives buried in wet sand at the foot of the Hope Island beach. It seems to have escaped attention as an Australian native. I have gathered it at Dunk, Green, and Palm Islands.

GASTROCHÆNA GIGANTEA Deshayes.

Fistulana gigantea Desh., Encycl. Méth., Vers, ii. 1830, p.142. *Gastrochæna gigantea* Desh., Trait. élém. Conchyl. i. 1843, p.34, Pl.ii., f.6,7,8; *id.*, Lamy, Bull. Mus. d'Hist. Nat. xii. 1907, p.207.

Under the name of *G. lamellosa* Desh., this species was added to our fauna by the Challenger Expedition. Dr. Lamy shows that both names, *gigantea* and *lamellosa*, refer to the same shell. In the case of *Cardium lobulatum*, the blighting influence of the Cumingian clique upon Deshayes has already been noticed. On all the reefs of the Great Barrier this is a common shell.

FISTULANA MUMIA Spengler.

Gastrochaena mumia Spengler, Nye Saml. K. Danske Skrifter, ii. 1783, p.179; *id.*, Tryon, Amer. Journ. Conch. iii. 1868, suppl., p.11. *Fistulana mumia* Smith, Proc. Malacol. Soc. vi. 1905, p.185.

A single specimen, from 5-10 fathoms, admits this stranger to the Australian fauna.

SUBEMARGINULA CLATHRATA Adams & Reeve

Patella tricarinata Born, Index Mus. Caes. Vind. 1778, p.440; *id.*, Testac. Mus. Caes. Vind. 1780, p.423, Pl.xviii. f.6; *id.*, Brauer, Sitzb. k. Akad. Wiss. lxxvii. 1878, p.73; not of Linné, 1767. (?)*Emarginula panhi* Quoy & Gaimard, Voy. Astrolabe, Zool. iii. 1834, p.327, Pl.68, f. 7-8. *E. clathrata* A. Adams & Reeve, Voy. Samarang, Moll. 1850, p.69, Pl.xi, f.6.

Under Born's name, I added this to the Australian fauna through a specimen from Mast Head Island. On again finding it from the Hope Islands, I remark that Born never proposed his *Patella tricarinata* as a new species, so that when it is accepted that he did not treat of the Linnean *P. tricarinata*, his name has no standing in literature. The Astrolabe figure ascribed to this species is not a good one, and has indeed been referred elsewhere by Deshayes.* I would take advantage of the excuse that "panhi" is not Latin, to reject the name. We thus arrive at the name proposed by Adams and Reeve, which is supported by an excellent figure.

LIOTIA TRIBULATIONIS, n.sp.

(Plate xxxix., figs.40-42.)

Shell minute, solid, depressed-turbinata. Colour cream. Whorls four and one-half, separated by a canaliculate suture. Sculpture: first two and one-half whorls smooth, remainder with five prominent spiral beaded cords, one a crown to the shell, another the umbilical edge, another running along the periphery,

* Anim. s. vert., (2) vii. 1836, p.584.

and others equidistant between these. The broad and shallow intervals are crossed by threads which rise in scale-tubercles on each cord, at the rate of about 35 knots to a cord, these radials penetrating the umbilicus. The latter is broad and funnel-shaped. Aperture subcircular, oblique, outer lip thickened. Height 0.9; major diam. 2.85; minor diam. 1.4 mm.

A few specimens, from 5-10 fathoms, Hope Islands. It also occurred to me, in 15 fathoms, off the Palm Islands. The novelty is nearest related to *L. venusta* Hedley,* but is far smaller, though proportionately higher and narrower, and more ornately sculptured. More remote are *L. acidalia* Melvill & Standen, and *L. philtata* Hedley.

LIOTIA ANXIA, n.sp.

(Plate xxxix., figs. 43-45.)

Shell minute, depressed, turbinate, widely umbilicate. Colour pale buff. Whorls three, rapidly increasing and loosely coiled, the final half-whorl descending and departing from the remainder. Sculpture: fine radial threads traverse the whole shell, about sixty of these being on the last whorl, their interstices closely latticed by rather finer spirals. Aperture free, circular, simple. Umbilicus broad and deep. Height 0.7; maj. diam. 1.1; minor diam. 0.85 mm.

A few specimens, from 5-10 fathoms, Hope Island, and 8 fathoms, Weary Bay. The novelty is related to *L. disjuncta* Hedley,† which differs in the sculpture.

CYCLOSTREMA ANXIUM, n.sp.

(Plate xxxix., figs. 46-48.)

Shell small, rather thin, glossy, discoidal, carinate. Colour dull white, whorls four, including a small elevate protoconch of a whorl and one-half, the last rapidly increasing. Suture envelop-

* These Proceedings, 1901, xxvi. p. 17, Pl.ii., f.1-3.

† Hedley, Mem. Austr. Mus. iv. 1903, p.336, f.66.

ing the keel of preceding whorl. Keel broad, projecting a fold beneath. Sculpture: above are about sixteen equidistant fine pitted grooves, and on the base half as many. Base rounded. Umbilicus broad and deep, angled at the margin, about one-quarter of the shell's diameter. Aperture entire, oblique, ovate, lip a little reflected below. Height 0·9; maj. diam 2·1; minor diam. 1·55 mm.

Two specimens, from 8 fathoms, off the Bloomfield entrance, in Weary Bay.

CYCLOSTREMA TORRIDUM, n.sp.

(Plate xl., figs. 49-51.)

Shell small, depressed, turbinate, perforate, thin, subtranslucent. Colour white. Whorls three, rounded, loosely coiled and rapidly increasing. Surface smooth and very glossy. Aperture subcircular, outer lip simple, inner lip expanded and bent towards the axis. Base rounded, umbilicus very narrow. Height 1·1; major diam. 1·2; minor diam. 0·9.

Numerous specimens, from 5-10 fathoms, off the Hope Islands. Allied to the southern *C. porcellanum* Tate & May, which is more elevated and a little larger.

NERITINA OUALANIENSIS Lesson.

N. oualaniensis Lesson, Zool. Coquille, ii. 1830, p. 379; *N. ualensis* von Martens, Conch. Cab. 1879, p. 193, Pl. xx.: *N. mertoni* Brazier, these Proceedings, ii. 1877, p. 21.

This species is abundant on the mud-flats at the entrance of the Bloomfield River. The beautiful colour-variety, termed *frondicineta* by von Martens, is predominant. Though Brazier had already recorded it under Recluz' synonym from the Palm Islands, I had overlooked it in compiling my catalogue of the mollusca of Queensland.*

* Report Australasian Association Advancement of Science. Vol. xii. Brisbane, 1909.

OBTORTIO VULNERATA, n.sp.

(Plate xl., fig.52.)

Shell elongate-conical. Colour dull white, a purple dash on the columella, apex tinged with brown. Whorls nine, inflated at the periphery, contracted at the suture. Sculpture: a varix frequently occurs on the back of the last whorl, and another on the penultimate whorl. Radials perpendicular, about fifteen, prominent at the periphery, declining towards the suture, on the final whorl tending to disappear. Spirals about eight cords on the last whorl, parted by broad and shallow interstices, on the earlier whorls about five, of which two or three on the periphery are most prominent. Two apical whorls smooth. Aperture oval, subchannelled anteriorly, outer lip simple, columellar lip thickened and reflected. Length 4; breadth 1.25 mm.

Abundant, in 5-10 fathoms, off the Hope Islands. This is a larger, more solid, and more coarsely sculptured shell than *O. fulva* Watson. The stain on the columella seems a useful recognition-mark.

On further examination I find that the protoconch of this genus is not heterostrophe, as I supposed at first. I would, therefore, withdraw it from the *Pyramidellide*, and transfer it to the *Rissoide*. *Bittium diplax* Watson,* appears to be another member of the genus.

The descriptions and figures of *Fenella* suggest to me that this genus of A. Adams might embrace the species I include in *Obtortio*, but I have rejected that genus because Watson and Melvill, who had the advantage of examining actual specimens, did not employ it.

CERITHIUM NODULOSUM Bruguière.

Cerithium nodulosum Bruguière, Ency. Méth., Vers, ii. 1792, p.478; *id.*, Brazier, Proc. Linn. Soc. N. S. Wales, i. 1877, p.313; *id.*, Dall, Proc. Philad. Acad. Nat. Sci. 1907, p.366. *Cerithium*

* Watson, Chall. Rep. Zool. xv. 1886, p.556, pl.xxxviii., f.4.

curvirostra Perry, General Conchology, 1811, Pl. xxxv., f.2.
Mathilda eurytima Melvill & Standen, Journ. of Conch. viii. 1896,
 p.310, Pl.xi., f.73, and Journ. Linn. Soc., Zool., xxvii. 1899, p.170.
Contumax decollatus Hedley, Mem. Austr. Mus. iii. 1899, p.436,
 f.25.

A series of growth-stages shows that the shells described by Melvill & Standen and myself, as above, are merely the young and decollate shell of this *Cerithium*. It has already been reported from this coast by Brazier, who saw it at Darnley Island. It is a characteristic associate of reef-corals.

TRIPHORA TRIBULATIONIS, n.sp.

(Plate xl., figs.53-54.)

Shell small, narrowly conical, acuminate. Colour white, irregularly splashed with rust. Whorls nine and a four-whorled protoconch. Sutures deep. On the spire-whorls two rows of beads, the upper the larger, within the row united by a broad band, each bead linked to its fellow in the opposite row by a fine radial thread, thus enclosing a deep square interstice. On the antepenultimate a spiral thread arises between the bead-rows and increases slowly to a full bead-row on the last whorl. Finally there are six bead-rows, the basal three small. A secondary sculpture of fine spiral threads is sometimes visible between the beads. Protoconch: first whorl round and smooth, remainder keeled and crossed by fine radial threads. Aperture subcircular, deeply notched above, canal much recurved, projecting as a spur, closed at the base. Length 4.25; breadth 1.25 mm.

Several specimens, off the Hope Islands. I found it also on the reef at Mast Head Island.

CERITHIOPSIS PINEA, n.sp.

(Plate xl., fig.55.)

Shell small, solid, the shape of a pine cone. Colour purple with cream beads. Whorls six, with a many-whorled subulate protoconch [mutilated in the specimen seen]. Sculpture: pro-

minient, rather elongate gemmules, set in two rows of about nineteen beads to a whorl, spirally strung on a band of half their height, and within the whorl linked from row to row, thus enclosing deep meshes in the interstices. Upon the contracted base are two additional and successively diminishing bead-rows. Aperture small, subquadrate. Length (with broken apex) 2.35; breadth 1.25 mm.

A few imperfect specimens from 5-10 fathoms, off the Hope Islands.

CERITHIOPSIS TELEGRAPHICA, n.sp.

(Plate xl., fig 56.)

Shell small, solid, elongate-ovate. Colour chestnut on the last whorls, fading to cream on the earlier, and to white on the protoconch. Whorls six, exclusive of a smooth subulate protoconch of several whorls. Sculpture: on each whorl two rows of large prominent gemmules, divided by a broad and deep furrow. The gemmules are about sixteen to a whorl; transversely they are distributed in vertical rows, upper series elongate in a radial direction, as if two series were joined together, the lower ones round. The protoconch seems like that of *C. ridicula*, but none are complete in the series before me. Base with two spiral cords. Aperture subquadrate, canal short. Length 2.1; breadth 0.95mm.

A few imperfect specimens from 5-10 fathoms, Hope Islands. The recognition-mark of this species is the upper row of elongate gemmules, followed by a series of round gemmules. A fanciful resemblance to the Morse code of dots and dashes suggested a name.

CERITHIOPSIS TRIBULATIONIS, n.sp.

(Plate xl., fig.57.)

Shell small, cylindro-conic. Colour uniform pale cinnamon. Whorls six, and a crooked, subulate prodissoconch of three and one-half smooth whorls. Sculpture: three rows of gemmules to a whorl, linked spirally and vertically to enclose small deep meshes in the interstices. The uppermost gemmule-row is rather larger than its fellows, and, by contrast with the deep sutural

furrow, conveys a slightly turreted aspect to the shell. On the last whorl there is an additional lower row of incipient gemmules, beneath which the base suddenly contracts. Aperture subquadrate, canal short. Length 2·5; breadth 0·85 mm.

Numerous specimens, from 5-10 fathoms, off the Hope Islands. Distinguished by its small size, subcylindrical shape, and treble row of large grains.

This and the following species, together with several undescribed forms, may be conveniently grouped in a new subgenus, which may be defined as follows.

JOCULATOR, subgen.nov.

Shell small, dextral, of ovate or bulbous contour, with a smooth subulate many-whorled protoconch. Type *Cerithiopsis ridicula* Watson.*

CERITHIOPSIS WESTIANA, n.sp.

(Plate xl., fig.58.)

Shell small, elongate-conical. Colour ochraceous, beads buff, protoconch white. Whorls five and one-half, with a smooth subulate protoconch of five and one-half whorls. Sculpture: two rows to a whorl of comparatively large gemmules, the lower row the smaller. A wider furrow runs between the rows of the same than between those of adjacent whorls. On the periphery of the last whorl is an unsegmented spiral cord, followed on the base by others in a diminishing series. Aperture subquadrate, canal short. Length 2·35; breadth 0·75 mm.

Numerous specimens from 5-10 fathoms, off the Hope Islands. The species appears to approach nearest to *C. turrigera* Watson,† from Hawaii, which has, however, four rows of beads on the last whorl, and is more contracted than the Queensland shell. The novelty is named in compliment to my friend, Miss Winifred West, to whom I am indebted for so many excellent illustrations.

* Chall. Zool. Rep. xv. 1886, p.528, Pl.xxxviii., f.1.

†Watson, Chall. Rep. Zool., xv. 1886, p.529, Pl.xxxviii., f.2.

VERMICULARIA DEPOSITA, n.sp.

(Plate xli., fig.61.)

Shell small, coarsely irregularly radiately ribbed. Commences with a two-whorled protoconch like *V. caperata*,* which it envelopes, then extends in three or four loose advancing prostrate coils, finally rising free and erect for a short length. Diameter of tube 0.7 mm. Length of coil 4; breadth 2.5 mm.

A few dead and bleached specimens from 5-10 fathoms, Hope Island.

EPITONIUM KOSKINUM, n.sp.

(Plate xl., figs.59-60.)

Shell minute, conical acuminate, imperforate base flattened. Colour cream. Whorls eight, including a subulate protoconch of four smooth whorls. Sculpture: about ten prominent radial ribs traverse the whole whorl, both ribs and interstices being crossed by fine close punctate grooves. Aperture subcircular, externally margined by a varix. Length 2.15; breadth 1.0 mm.

A few specimens from 5-10 fathoms, Hope Islands. Probably the species attains a larger growth than my specimens represent. *Scalardia cerigottana* Sturany,† appears to be very like, but it is improbable that it should occur both in the Eastern Mediterranean and on the coast of Queensland.

PYRAMIDELLA ACUS Gmelin.

Voluta acus Gmelin, Syst. Nat. xiii. 1791, p.3451, for Martini, Conch. Cab. iv., Pl.157, f.1493-4; *Pyramidella maculosa* Forbes, in MacGillivray, Voy. Rattlesnake, ii. 1852, p.363; *P. punctata* Dall & Bartsch, Biolog. Soc. Washington, xvii. 1905, p.4.

Occurred alive in the sandy mud round Hope Island. The only reference to this species as Australian, is Forbes' note of it from the islets of Trinity Bay, a little south of our station.

* These Proceedings, 1908, xxxiii. p.457, Pl.x., f.38.

†Sturany, Denk. Math.Naturwiss. K. Akad.Wien, lxiii. 1896, p.9, Pl.i.,f.3-4.

ODOSTOMIA ABJECTA, n.sp.

(Plate xli., fig.62.)

Shell small, solid, oblong, imperforate. Colour uniform buff. Whorls four, and a heterostrophe protoconch, last whorl about equal to the remainder. Suture deep. Surface smooth but dull. Aperture ovate, bent in towards the axis, rounded anteriorly. Plication invisible externally. Length 1.65; breadth 0.7 mm.

Several specimens from 5-10 fathoms, off the Hope Islands.

ODOSTOMIA ADIPATA, n.sp.

(Plate xlii., fig.73.)

Shell small, solid, ovate, imperforate, smooth and glossy. Colour white. Whorls three, plus a half-immersed heterostrophe protoconch, round, slightly shouldered at the summit, rapidly increasing, the last more than half the shell. Aperture large, ovate, effuse anteriorly, columellar margin reflected, fold slight and very oblique. Length 1.9; breadth 1.05 mm.

A few specimens, from 5-10 fathoms, off the Hope Islands.

ODOSTOMIA ANXIA, n.sp.

(Plate xli., fig.63.)

Shell small, rather solid, oblong, variable in shape, smooth and glossy, imperforate. Colour white. Whorls three, and a deeply immersed heterostrophe protoconch, rapidly increasing, rounded, the last three-quarters of the total length. Aperture very large, subauriculate, lip thickened and reflected columellar fold degenerate. Length 1.95; breadth 1.2 mm.

Three specimens, from 5-10 fathoms, off the Hope Islands.

ODOSTOMIA ARTICULATA, n.sp.

(Plate xli., figs.64-65.)

Shell small, slender-conical. Colour dull white. Whorls flattened, parted by deep sutures, seven and one-half, with a

small heterostrophe apex. Sculpture: fifteen strong, elevated, sigmoid ribs cross the whorls perpendicularly and fade away on the base; they are rather narrower than their deep interstices, and are interrupted, from whorl to whorl, by the sutural trench. These radials over-ride two spiral threads, the upper of which alone persists on the spire-whorls as a supersutural keel. Columellar plication prominent. Length 3.3; breadth 1.0 mm.

The double peripheral thread and jointed aspect of the spire give this species an individuality. Several specimens were taken, in 5-10 fathoms.

ODOSTOMIA CHOREA, n.sp.

(Plate xli., fig.66.)

Shell small, solid, subcylindrical, imperforate. Colour white with a narrow gold band in the centre of each whorl, and another on the body-whorl just below the level of the lip-insertion. Whorls five and one-half, and an immersed heterostrophe protoconch. Sculpture: narrow, sharp perpendicular radial riblets, separated by rather broader interstices, extending from summit to base; on the last whorl these amount to sixteen; no trace of spiral sculpture. Aperture pyriform, rather oblique, rounded anteriorly, outer lip simple, a solid callus on the body-whorl, plication slight, deep seated, columellar margin reflected. Length 2; breadth 0.75 mm.

Several specimens, from 5-10 fathoms, off the Hope Islands; also from 17-20 fathoms, off Mast Head Island, and beach at Caloundra. The latter, which sometimes have an extra gold line on the base, are mentioned as perhaps a variety of *O. opaca*.* The latter is known only from Sydney.

ODOSTOMIA COMPTA Brazier.

Odostomia compta Brazier, These Proceedings, i. 1877, p.259: *id.*, Hedley, Rec. Austr. Mus., iv. 1901, p.125, Pl. xvi., f.16-19: *O. eutropia* Melvill, Ann. Mag. Nat. Hist. (7), iv. 1899, p.94, Pl. i., f.14.

* Hedley, These Proceedings, xxx. p.525; xxxii. p.482.

Mr. Gabriel has lent me specimens of *O. eutropia*, identified by its author. These agree with a common and variable shell first described from the Chevert Collection. It was abundant at the Hope Islands. I have also traced it south to the Palm Islands and Port Curtis, and westerly to Van Diemen's Inlet in the Gulf of Carpentaria. Mr. Melvill notes it from Bombay and the Persian Gulf. Another Australian species which the same author has carried as far west, is *Capulus violaceus* Angas.*

ODOSTOMIA GUMIA, n.sp.

(Plate xli., fig.67.)

Shell small, solid, ovate-conical. Colour buff. Whorls five, and a heterostrophe protoconch. Sculpture: prominent spiral ribs, equal in breadth to their interstices, on the body-whorl eight, on the earlier three, summits of spirals polished, interstices finely radially striated. Aperture ovate, plication prominent, horizontal, columellar margin reflected over a narrow perforation. Length 3.55; breadth 1.6 mm.

One specimen, from 5-10 fathoms, Hope Island.

ODOSTOMIA HUMERALIS Hedley.

Pyrgulina humeralis Hedley, These Proceedings, 1902, xxvii. p.11, Pl.iii., f.32. *Odostomia (Miralda) ima* Melvill, Proc. Malacol. Soc. vii. 1906, p.75, Pl.vii., f.15.

Mr. Gabriel has lent me a specimen from the Persian Gulf, identified by Mr. Melvill as *O. ima*, which exactly corresponds to large examples of *O. humeralis*, from 5-10 fathoms, off the Hope Islands. Both here and at Mast Head it occurred plentifully.

A near relation, perhaps indeed another synonym, seems to be *Pyrgulina eximia* Dautzenberg & Fischer.†

* Melvill & Standen, Proc. Zool. Soc. 1901, ii. p.362.

† Dautzenberg & Fischer, Journ. de Conch. liv. 1906, p.196, Pl.vii., f.5.

ODOSTOMIA LAQUEARIA, n.sp.

(Plate xliii., fig.82.)

Shell small, subcylindrical, imperforate. Colour white. Whorls three, and a heterostrophe protoconch. Sculpture: strong elevated spiral cords, on the first, two; on the next, three; and on the last whorl, six; the basal being weaker, the deep interstices minutely punctate. A particularly broad deep furrow along the suture distinguishes the whorls. Aperture ovate, plication deep-seated, inner lip elevated. Length 1.4; breadth 0.6 mm.

A couple of specimens, from 5-10 fathoms, off the Hope Islands.

ODOSTOMIA MACCULLOCHI, n.sp.

(Plate xli., figs.68-69.)

Shell small, conical-ovate, rather solid, subturreted. Colour dull white. Whorls five, and a partly sunk heterostrophe protoconch. Suture channelled. Sculpture: about thirty fine radial riblets, which project as a crown on the summit of the whorl, and fade away on the base. Across the flat interstices run fine spiral threads, about thirty on the last whorl, and ten on the penultimate. Aperture large, elongate-ovate; columellar plication prominent. Length 4.5; breadth 1.55 mm.

Three specimens, from 5-10 fathoms. Named after my friend and colleague, Mr. A. R. McCulloch, who was a member of the party.

ODOSTOMIA MIGMA, n.sp.

(Plate xli., fig.70.)

Shell elevate, conical, solid, imperforate. Colour white. Whorls six, and a heterostrophe protoconch, flat-sided, last sharply angled at the periphery. Sculpture: strong elevated spiral cords; on the upper whorls, three; on the last four, at and above the periphery, three feebler ones on the base, of which two wind into the aperture; interstices crossed by fine close radial

threads. Aperture subquadrate, plication strong, horizontal. Length 3.35; breadth 1.4 mm.

A few specimens, from 5-10 fathoms, off the Hope Islands.

ODOSTOMIA SPERABILIS, n.sp.

(Plate xli., fig.71.)

Shell small, subcylindrical, imperforate, thin, subtranslucent, smooth and glossy. Colour milk-white. Whorls five, plus a deeply immersed heterostrophe apex, rather irregularly coiled, rounded, with deep sutures. Sculpture: a few irregularly disposed varices, most frequent on the upper whorls, and faint, microscopic radial striæ. Columellar fold slight, margin of aperture a little thickened. Length 3; breadth 1.1 mm.

A few specimens, from 5-10 fathoms, off the Hope Islands; also 15 fathoms, off the Palm Islands; and 17-20 fathoms, Mast Head Island.

This eccentric form perhaps belongs to the subgenus *Oceanida* de Folin, which I know only by secondhand references.

ODOSTOMIA TRIBULATIONIS, n.sp.

(Plate xli., fig.72.)

Shell small, solid, cylindro-conical, imperforate. Colour white. Whorls four, and a half-sunken heterostrophe apex. Suture deeply channelled. Sculpture: close straight perpendicular radial riblets, about twenty-two to the last whorl, ceasing abruptly at the periphery; their interstices are latticed by about half-a-dozen weak spiral threads. On base, four equally spaced, smooth spiral cords. Aperture ovate, columellar plication deeply entering. Length 1.65; breadth 0.8 mm.

A few specimens, from 5-10 fathoms, off the Hope Islands. *Pyrgulina lamyi* Dautzenberg & Fischer,* appears to differ by fewer radials.

* Dautzenberg & Fischer, Journ. de Conch, liv. 1906, p.190, Pl.vi., f.15.

TURBONILLA GABRIELI, n.sp.

(Plate xlii., fig 74)

Shell small, slender, acicular. Colour dull white. Whorls ten, and an obliquely projecting heterostrophe apex of about four whorls. Sculpture: about eleven strong straight perpendicular radial ribs, discontinuous from whorl to whorl, separated by deep smooth interstices of equal breadth. These ribs cease abruptly at the base, and are bounded by a slight spiral thread, which reappears on the spire-whorls. Base smooth. Length 3.75; breadth 0.7 mm.

A few specimens of this remarkably slender species, from 5-10 fathoms. It is named in honour of a member of our party, Mr. J. Gabriel. The subgenus *Nisiturris*, which is largely developed in these seas, includes this and *T. taylori*.*

TURBONILLA PERSCALATA, n.sp.

(Plate xlii., fig.75.)

Shell small, solid, gradate, subcylindrical, imperforate. Colour dull white, Whorls four, plus a half-immersed heterostrophe protoconch. Sculpture: about eighteen prominent radial ribs, which cross each whorl obliquely, and project on the summit. The broad interstices are traversed by fine spiral threads, varying in number and development. Aperture subquadrate, columellar fold distinct. Length 2.2; breadth 0.9 mm.

This species varies considerably, both in form and sculpture. Numerous specimens occurred, in 5-10 fathoms, Hope Islands.

TURBONILLA TAYLORI, n.sp.

(Plate xlii., figs.76-77.)

Shell small, acicular. Colour: ribs opaque white on a semi-translucent ground. Whorls seven, and a produced prostrate heterostrophe apex of about three whorls. Sculpture: about

* Dall & Bartsch, Proc. U. S. Nat. Museum, xxx. 1906, p.341.

twenty-eight rather straight and narrow ribs cross the whorls obliquely, each terminating above in a round bead. Ribs more crowded on the last whorl, and continuing on the base. Spiral striæ appear in the basal interstices. Length 2.35; breadth 0.65 mm.

A few specimens, from 5-10 fathoms, off the Hope Islands. Another from 15 fathoms, off the Palm Islands. The species is chiefly distinguished by the bead-collar below each suture. It is named in honour of my companion on the trip, Mr. T. Griffith Taylor.

TURBONILLA TENUISSIMA, n.sp.

(Plate xlii, fig.78.)

Shell minute, acicular, thin, translucent, imperforate. Whorls nine, and a small heterostrophe protoconch, rounded and contracted at the sutures. Sculpture: first three whorls smooth, remainder crossed by about thirty fine, sharp, radial, arcuate ribs, which gradually vanish on the base. Length 2.3; breadth 0.5 mm.

A few specimens, from 5-10 fathoms, Hope Islands.

TURBONILLA TRIBULATIONIS, n.sp.

(Plate xlii., figs.79-80.)

Shell small, turreted. Colour dull white. Whorls seven, and a produced recumbent heterostrophe apex. Sculpture: about twenty-one prominent, slightly bowed, radial ribs, whose summits, linked by a spiral cord, project as a toothed crown above the whorl. At the basal angle another spiral cord, knotted by the passage of the ribs, encircles the shell, beyond which the ribs diminish. Fine spiral grooves occupy the interstices of the radials. Aperture oblong, plication not apparent from the exterior. Length 4.1; breadth 1.25 mm.

This appears to be related to *T. belonis* Melvill & Standen,* than which it is smaller, and more coarsely sculptured. A few specimens, from 5-10 fathoms.

* Melvill & Standen, Journ. of Conch. viii. 1897, p.303, Pl.x., f.56.

EULIMA CONAMINIS, n.sp.

(Plate xliii., figs.83-84.)

Shell thin, small, imperforate, conical, varying from stout to slender. Colour variable, uniform pale buff to chocolate or white with a peripheral orange line. Whorls eight, rounded or angular, smooth and glossy; sutures impressed. Aperture simple, angled above, rounded below. Specimen figured, length 1.65; breadth 0.7 mm. Another specimen, length 1.85; breadth 0.9 mm.

Var. ANGULATA, var.nov.

(Plate xliii., fig.84.)

Whorls conspicuously keeled at the periphery.

This variable species occurred plentifully, in 5-10 fathoms, off the Hope Islands. I also procured it in 15 fathoms, off the Palm Islands, and Mr. A. U. Henn took it off Cape Sidmouth.

EULIMA PIPERITA, n.sp.

(Plate xliii., fig.85.)

Shell small, slender-conic, apex mucronate. Whorls nine. Colour white, with groups of small chocolate dots clustered around the periphery. Aperture pyriform, columella straight, its margin a little expanded and reflected, a thin callus on the body-whorl. Length 2.5; breadth 1 mm.

A few specimens, from 5-10 fathoms, off the Hope Islands. The dot-painting affords a ready recognition of this species.

CYMATIUM PYRUM Linné.

Murex pyrum Linné, Syst. Nat. x. 1758, p.749; *id.*, Hanley, Ips. Linn. Conch. 1855, p.290. *Triton clavator* Reeve, Conch. Icon. ii., Triton, 1844, Pl.iii., f.7.

A specimen, from 5 fathoms within Cairns Reef, is the first appearance of this shell in Australia.

Also unrecorded for Australia is *Cymbium pfeifferianum* Reeve,* which I found on the beach at Dunk Island, some distance south.

CYMBIUM FLAMMEUM Bolten.

Cymbium flammeum Bolten, Mus. Bolt. (2), 1798, p.151, for Martini, Conch. Cab. iii. 1777, p.59, Pl. lxxiv., f.780. *Voluta diadema* Lamarck, Ann. du Mus. xvii. 1811, p.57.

This shell is common along the whole coast of Queensland, and has been reported from Moreton Bay, Mast Head Island, Dunk Island, Cape Grafton, Cape Bedford, Torres Strait, and the Gulf of Carpentaria, under the names of *Melo diadema* Lamarck, *M. mucronatus* Broderip, *M. broderipii* Gray, *Cymbium ducale* Lamarck, and *C. georginae* Gray. All these synonyms are preceded by Bolten's name, hitherto ignored.

It was of considerable importance to the aboriginals, who ate the animal, and used the shell for a canoe-bailer, for a cooking utensil, for personal adornment, and for wommera-handles. The following native names have been collected: niugan, Moreton Bay, Tom Petrie; ping-ah, Dunk Island, Banfield; ji-gai, Cape Grafton, Roth; dir-hai, Cape Bedford, Roth; edzera, Darnley Island, Jukes; alup, Torres Strait, Haddon; and pe-ra, Batavia River, Roth.

An old worn shell, which I saw decorating a fence on Murray Island, is $1\frac{3}{4}$ inches long, and $10\frac{1}{2}$ broad. The egg-capsules are described by Banfield.†

In Shark Bay, Western Australia, the animal is infested by *Aspidogaster macdonaldi* Monticelli.‡

MARGINELLA ANXIA, n.sp.

(Plate xliii., figs.86-87.)

Shell small, broadly ovate, involute, a heavy and broad callus spread over each end. Colour milk-white. Adult smooth and

* Reeve, Conch. Icon. ii., Triton, 1844, Pl.iv., f.14.

† "The Confessions of a Beachcomber," 1908, p.148.

‡ Macdonald, Trans. Linn. Soc. Zool (2), i., 1879, p.210, Pl.xxxiv., f.1-5.

glossy; immature shell with fine close spiral punctate grooves. Aperture crescentic, canaliculate at either end. Outer lip thickened and reflected, finely closely denticulate within. Inner lip with a thick callus deposit. In the young (fig.87) there are five columellar plaits decreasing gradually in size, the least about the centre of the aperture; in the adult, two large, and one small plait alone are visible. Length 2·2; breadth 1·6 mm.

A few specimens, from 8 fathoms, Weary Bay. I also took it, in 15 fathoms, off the Palm Islands; and in 17-20 fathoms, off Mast Head Reef.

TURRIS GRANOSUS Helbling.

Murex (Fusus) granosus Helbling, Abh. Privatges. Bohm. iv. 1779, p.116, Pl.2, f.16; *id.*, von Martens, Malak. Blätt. xvi. 1869, p.235; *id.*, Dall, Journ. of Conch. xi. 1906, p.291; *Pleurotoma carinata* Griffiths & Pidgeon, Mollusca and Radiata, 1834, p.599, Pl.23, f.2; *id.*, Weinkauff, Jahrb. d. deut. Malak. Gesell. ii., 1875, p.288, Pl.ix., f.2; *Pleurotoma speciosa* Reeve, Conch. Icon. i. 1843, Pl.ii., f.9; *Pleurotoma kienerii* Doumet, Mag. de Zool. 1840, Moll., Pl.10; *id.*, Smith, Ann. Mag. Nat. Hist. (6), xiv. 1894, p.160.

A few specimens were dredged in 5-8 fathoms, Cairns Reef. The species is hitherto unknown from Australia. Mr. Gabriel identified a specimen we took, with a shell from the Belcher Collection in the British Museum, marked "*Pleurotoma kieneri* Doumet."

DRILLIA LIVIDA Gmelin.

Strombus lividus Gmelin, Syst. Nat. xiii. 1791, p.3523, for Chemnitz, Conch. Cab. ix. 1786, Pl.136, f.1269-70. *Pleurotoma auriculifera* Lamark, An. s. vert. vii. 1822, p.91; *id.*, Deshayes, *op. cit.* 2 ed. ix. 1843, p.345.

In the absence of a figure and a type, the Linnean *Strombus lividus* is, according to Hanley,* unrecognisable. Under these circumstances, it is better to adopt the name of Gmelin, securely based on the figure of Chemnitz, than to use Lamarck's *auricu-*

* Hanley, Ips. Linn. Conch. 1855, p.278.

lifera. The claim of *lividus* is also supported by Deshayes, in commenting on Lamarck's name.

The species has not appeared before in Australian waters. We dredged a few examples in 5-10 fathoms.

GLYPHOSTOMA TRIBULATIONIS, n.sp.

(Plate xlii., fig.81.)

Shell small, solid, biconical, angled at the periphery. Colour white or buff. Whorls six, including a small smooth two-whorled protoconch. Sculpture: about a dozen undulatory radial ribs, equal in breadth to their rounded interstices, arise at the suture, are most prominent on the shoulder, and fade on the base. Ascending the spire, these radials gradually diminish. About twelve small spiral threads, which traverse ribs and furrows alike, are evenly distributed between the shoulder and the anterior extremity. Finally, a secondary sculpture of fine close grains, arranged radially and spirally, is spread over the whole surface, giving a "gritty" aspect to the shell. Aperture narrow, protected by a strong projecting varix, the outer lip with two or three ill-defined tubercles within, canal short. Length 4.75, breadth 2.5 mm.

Abundant in 5-10 fathoms, at Hope Island. I found a small form of it, in 15 fathoms, off the Palm Islands. The strong shoulder-angle and sanded surface are the principal features. Cape Tribulation is on the mainland, opposite the Hope Islands.

GLYPHOSTOMA ALICEÆ Melvill & Standen.

(Plate xliii., fig.88.)

Glyphostoma aliceæ Melvill & Standen, Journ. of Conch. viii. 1895, p.95, Pl. ii., f.15; *id.*, Hedley, Mem. Austr. Mus. iii. 1899, p.471.

Hitherto this species has not been recorded as Australian. It was originally described from the Loyalty Islands, and then identified from Funafuti. The dark patches on the lips are useful recognition-marks. As the original figure is vague, I have

here illustrated a shell, 14 mm. long, from 5-8 fathoms, Hope Islands. The Queensland example is the largest seen.

Another member of the genus unrecorded for Australia, is *Glyphostoma ocellatum* Jousseume,* of which I took an example at Green Island, off Cairns.

MANGELIA ANXIA, n.sp.

(Plate xliii., fig.89.)

Shell small, solid, subcylindrical, shoulder sloping, body perpendicular, base excavate, sharply angled at base and shoulder. Colour: all specimens seen are faded, but appear to have been buff, the protoconch and spots on the lower whorls darker, the basal keel white. Whorls three, and a protoconch of three and one-half whorls, of which the first is turbinate, slightly tilted and engraved with microscopic spirally punctured lines, followed by two transitional whorls keeled at periphery, and ornamented by fine close obliquely radiating riblets. Adult sculpture: on the body-whorl, fifteen spiral cords, of which the third and eighth are prominent, expressing the angle above and below the barrel of the whorl, the basal cords broken into beads; penultimate with six, and antepenultimate with three spirals. Broader than the spirals are the perpendicular radials, fourteen on the last whorl, and proportionately fewer on the rest. Commencing at the suture and vanishing on the base, they raise tubercles at the intersection of the spirals. The resulting meshes enclose deep pits in which is a microscopic shagreen surface. Aperture contracted, straight above, flexed below, fortified by a broad strong varix, out of which a deeply notched subcircular anal sulcus is excavated. The spiral sculpture traverses the varix. Within the outer lip are four tubercles. Inner lip excavate. Canal short, broad. Length 3.3; breadth 1.1 mm.

Several specimens, from 5-10 fathoms, Hope Island. On the assumption that it was immature, a single example from Mast

* Jousseume, Bull. Soc. Zool. France, ix. 1884, p.186, Pl.iv, f.4; Melvill & Standen, Journ. of Conch. viii. 1897, p.401.

Head Island was catalogued (These Proceedings, xxxii. p.484) as *Clathurella edychroa* Hervier,* not otherwise known from Australia. With a larger series, it is now apparent that the Australian shell consistently differs from the Lifuan, by a whorl less, smaller size, and by coarser sculpture. Other members of this peculiar group are *M. cancellata* Beddome, *M. telescopialis* and *M. pentagonalis* Verco, and *M. lutaria* Hedley. A more distant relation is *M. hilum* Hedley.

MANGELIA CALCATA, n.sp.

(Plate xlv., fig.90.)

Shell small, solid, ovate, turreted. Colour uniform grey. Whorls, four remaining [apex missing in the only example seen]. Sculpture: oblique, wave-like, radial folds, five to a whorl, expanded and projecting prominently at the summit of each whorl. The whole surface overrun by fine, close-packed, spiral threads. Aperture linear, sulcus an almost closed tube at the top of a bold varix, outer lip insinuate near the base, canal very short. Length 3.6; breadth 1.5 mm.

A single example, from 5-10 fathoms, Hope Island. This is a notable shell; the broad flanges suggest the idea of being trodden under foot; the subtubular posterior notch and the closely corded sculpture are both peculiar.

MANGELIA GRACILENTA Reeve.

(Plate xlv., fig.91.)

Pleurotoma gracilentata Reeve, Conch. Icon. i. Pl.xiv., f.114; *P. contracta* Reeve, *op. cit.* f.116,(1843); *P. fusoides* Reeve, *op. cit.* Pl.xxxviii., f.349,(1846); *vide* E. A. Smith, Zool. Coll. Alert, 1884, p.39.

This species has not been cited from Queensland, but I had already recognised it, from 15 fathoms, off the Palm Islands, from Mapoon, from off the Horsey River, and from 5 fathoms,

* Hervier, Journ. de Conch. xlv. 1897, p.146; xlv. 1897, p.109, Pl.iii., f.2.

Van Diemen's Inlet, Gulf of Carpentaria. Mr. J. C. Gabriel confirmed this identification by comparison with the type in London. As the figures of the species are all unsatisfactory, I add an illustration of a Hope Island shell, 8 mm. in length. The species was common in 5-10 fathoms. For this species Böttger* formed a new subgenus *Paraclathurella*.

MANGELIA INFULATA, n.sp.

(Plate xliv., fig.92.)

Shell small, very solid, regularly biconical, sharply angled at the shoulder. Colour white, or pale buff with narrow bands of darker buff. Whorls five, including a protoconch of two smooth rounded whorls, last whorl two-thirds of the shell's length. Sculpture: on the body-whorl are eight widely spaced thick and prominent vertical ribs radiating from the suture, and vanishing on the base. On the shoulder these are linked and overrun by a spiral cord of nearly equal calibre. This sculpture is repeated on the penultimate, where the radials are smaller and closer. On the antepenultimate the spiral cord degenerates, and the radials are closer, rounder, and more oblique. Apart from this, the shell has, in general, a smooth expression, but a few faint spirals mark the base, while still fainter scratches traverse the rest of the shell. Aperture narrow, protected by a heavy outstanding varix, anteriorly with a semicircular excavation, followed by a tubercle on either side. Canal short, broad, effuse. Length 3.55; breadth 1.7 mm.

Numerous specimens, in 5-10 fathoms, Hope Island. I took it also, in July, 1901, in 15 fathoms, east of Great Palm Island.

Mangelia angulata Reeve,* appears, from the figure, to be larger and to have a sharper, more prominent, peripheral keel. Possibly the record of that species from Cape York† was based on *M. infulata*.

* Böttger, Nachr. deut. Malak. Gesell. xxvii. 1895, p.56.

* Conch. Icon. iii. Pl.viii., f.62.

† Brazier, Proc. Linn. Soc. N. S. Wales, i. p.160.

M. apollinea Melvill, from the Persian Gulf,* is also larger, but proportionately more slender.

MANGELIA NAUFRAGA, n.sp.

(Plate xliv., figs.93-95.)

Shell solid, narrowly fusiform. Colour cream. Whorls seven, including a small, smooth, two-whorled protoconch. Sculpture: about eight prominent curved ribs undulate the suture, and extend to the base; these are divided by broad and gently sloping interstices. Across both ribs and furrows run fine, close, spiral threads, amounting to 32 to 36 on the last whorl, and about one-half that number on the penultimate. Between the threads are microscopic radial bars. Aperture oval, anterior notch not apparent, outer lip protected by a strong rib-varix, canal short. Length 6; breadth 2.3 mm.

Var. CONATA, var.nov.

(Plate xliv., fig.94.)

Shorter and broader than the species in chief, pale brown with a chocolate peripheral band.

The reef on which the "Endeavour" was wrecked, in 1770, lies immediately south of the scene of our dredging.

A few specimens of the typical form and one of the variety, from 5-10 fathoms, off the Hope Islands. I also took a few of the typical form, in 17-20 fathoms, off Mast Head Island; and received one from Mr. J. Brazier, which he dredged in Torres Strait.

In general character *Cithara striatella* Smith,† resembles this, but the novelty is smaller, comparatively narrower, and closer ribbed. *Mangelia agna* Melvill & Standen,‡ is more slender and has fewer ribs.

* Melvill, Proc. Malacol. Soc. vi. 1904, p.166, Pl.x., f.20.

† Smith, Ann. Mag. Nat. Hist. ser.5, xiv. 1884, p.327.

‡ Melvill & Standen, Journ. of Conch. viii. 1896, p.279, Pl.ix., f.12.

MANGELIA PERISSA, n.sp.

(Plate xliv., figs.96-97.)

Shell thin, ovate-fusiform, spire acuminate. Whorls five, and a two-whorled protoconch, the latter subulate with spiral punctate grooves. Colour dead white except a cinnamon protoconch. Sculpture: spiral threads predominate, amounting on the body-whorl to about thirty, not impinging on a broad anal fasciole, beneath this strong and widely spaced, becoming feebler and closer below the periphery, but waxing stronger on the back of the canal; the penultimate carries six such spirals, then three, then two on the earlier whorls. The radials are stronger on the younger whorls, but decrease on the older; in the last whorl they fade away about the periphery, and in the penultimate scarcely reach across the whorl. In every case they are overridden by the spirals. Aperture elliptical; inner lip overlaid by a substantial callus which, opposite the sulcus and at the base of the canal, is provided by a small but sharp tubercle. Outer lip produced externally into a prominent varix, and beset within by a row of small tubercles. Canal short and broad. Length 7.4; breadth 2.9 mm.

A few specimens, from 5-10 fathoms, Hope Island. The extreme reduction of radial sculpture in this group is rare. I cannot recall any near ally of this peculiar shell, some aspects of which resemble *Daphnella*.

MANGELIA RIGORATA, n.sp.

(Plate xliv., figs.98-99.)

Shell small, oblong, turreted, rather solid. Colour dull white. Whorls six, including a smooth three-whorled protoconch, whose initial whorl is eccentric. Sculpture: from ten to twelve very prominent, close, radial ribs, widest apart on the back of the last whorl, and becoming closer on the earlier whorls. These ribs project on the summit of the whorl and fade gradually on the base. The last whorl is encircled by twelve to fourteen strong spiral cords, which override both ribs and interstices; on the

penultimate there are four such cords, and on the antepenultimate three. Between and parallel to the spiral cords are fine, close, microscopic hair-lines. Aperture narrow linear, with deep sinus and prominent varix. Length 3·8; breadth 1·5 mm.

Some variation in contour occurs, some individuals being shorter and broader than others. The species is characterised by its straight, narrow form, gradate spire, and strongly modelled sculpture. Several specimens, from 5-10 fathoms, off Cairns Reef.

MITRA AMABILIS Reeve.

Mitra amabilis Reeve, Conch. Icon. ii. Pl. xxxiii., f. 274 (March, 1845); *id.*, Proc. Zool. Soc. 1845, p. 53 (Sept. 1845); *id.*, Jickeli, Jahrb. Malak. Gesell. 1874, p. 49, Pl. ii., f. 10; *id.*, Sturany, Denk. kais. Akad. Wiss. lxiii. 1903, p. 246, Pl. vii., f. 9.

This species is new to Australia. Two specimens were taken at Hope Island, and I had previously found it at the Palm Islands.

MITRA DESHAYESII Reeve.

Mitra deshayesii Reeve, Conch. Icon. ii. Pl. xxii., f. 170 (Nov. 1844); *id.*, Proc. Zool. Soc. 1844, p. 182 (Feb. 1845).

One specimen, from the Hope Islands, adds this species to the Australian fauna.

MITRA LUCIDA Reeve.

Mitra lucida Reeve, Conch. Icon. ii. Pl. xxxiii., f. 266 (March, 1845); *id.*, Proc. Zool. Soc. 1845, p. 51 (Sept. 1845).

Not previously noted in Australia. Mr. J. C. Gabriel identified a Hope Island specimen by comparison with the type in the British Museum. I have also taken it at the Palm Islands.

MITRA SANGUISUGA Linné.

Voluta sanguisuga Linné, Syst. Nat. x. 1758, p. 732; *id.*, Hanley, Ips. Linn. Conch. 1855, p. 228. *Mitra sanguisuga* Fischer & Dautzenberg, Journ. de Conch. lii. 1906, p. 385.

A single specimen, from the Hope Islands, adds this species to the Australian fauna.

MITRA SUBDIVISA Bolten var. INTERMEDIA Kiener.

Vexillum subdivisum Bolten, Mus. Bolt. (2), 1798, p.139, for Chemnitz, Conch. Cab. x. 1788, p.171, Pl.151, f.1436-7; *Mitra intermedia* Kiener, Spec. des Coq., *Mitra*, 1839, p.73, Pl.22, f.70.

The nomenclature of this form proceeded thus: Chemnitz figured and described polynomially two species of *Mitra* as one. To the amalgam, Gmelin, in 1791, gave the name of *Voluta subdivisa*. Seven years later this specific name was, by Bolten, restricted to Chemnitz' figures 1436-7, leaving the other shell, illustrated by figs. 1434-5, to bear the title of *Mitra lyrata*, subsequently imposed on it by Lamarck.* An elongate form was distinguished by Kiener as *Mitra intermedia*, but Deshayes† reduced it to varietal rank. Reeve's Monograph of *Mitra*, so slovenly in preparation, so disorderly in presentation, gives no help in unravelling a complicated synonymy.

The shell has been reported by Melvill & Standen‡ from Murray Island. Besides the present record of the Hope Islands, I have traced it south to Dunk and Palm Islands.

While on the subject of *Mitra*, I might discuss a puzzling record of *Mitra decurtata* Reeve, from Torres Strait, by Melvill & Standen.§ These authors have stated|| that "*M.(Strigatella) decurtata* Reeve = *M. scutulata* Lam."

In the first place, it may be remarked that *scutulata* dates back to Gmelin; the shell was not known to Lamarck. Secondly, it is not obvious why the younger name of Reeve was used in preference to the older. Thirdly, Reeve's figure (*Mitra*, f.154) of *M. decurtata* is unlike that of Chemnitz¶ on which *scutulata* was based. An example of *M. scutulata* taken by Dr. Finckh, on Lizard Island, a short distance from the Hope Islands, shows it to occur on the coast, and I will therefore assume that this it is which Melvill and Standen identified from Haddon's Collection,

* Lamarck, Anim. s. vert. vii. 1822, p.308.

† Deshayes, Anim. s. vert. (2), x. 1844, p.316.

‡ Melvill & Standen, Journ. Linn. Soc., Zool. xxvii. 1899, p.158.

§ Melvill & Standen, *op. cit.* p.158.

|| Melvill & Standen, Journ. of Conch. viii. 1895, p.101.

¶ Conch. Cab. x. Pl.151, f.1428-9.

NASSARIA MORDICA, n.sp.

(Plate xlv., fig.100.)

Shell of medium size, very solid, biconical, false umbilicate. Colour buff, the cords on the rib-summits of the periphery picked out with chocolate, aperture flesh-tint. Whorls seven, and a protoconch of three smooth whorls. Sculpture : seven prominent oblique rounded ribs cross each whorl, and mount the spire continuously, the last forming a varix to the aperture. These are crossed by spiral cords, about fifteen to the last and five to the penultimate whorl, two or three of the peripheral cords predominating over the rest. Across these run close fine radial laminae, puckered into imbricating scales on crossing the spirals. Canal open, short, recurved, the canal-tips of previous apertures enclosing with a frill a false umbilicus. Aperture narrow-oval; on the right side are seven evenly spaced entering ridges which penetrate a short distance only; externally they end abruptly at a circumferential groove. Posteriorly the aperture ends in a furrow followed by a tubercle. The upper part of the inner lip is clear of obstructions, but the lower is occupied by five strong and deeply penetrating spiral ridges which do not reach the free edge of the columellar lip. Length 16; breadth 8 mm.

A few specimens, from 5-10 fathoms, off the Hope Islands. Mr. J. Brazier has given me specimens which he dredged, in 30 fathoms, off Darnley Island.

Fusus cereus Smith,* from this coast, has a general resemblance, but the columellar ridges of the novelty readily distinguish it. The rather artificial character of the columella has constrained me to refer this to *Nassaria*, but I have a suspicion that ultimately both *Fusus imbricatus*† Smith, and *F. cereus* Smith, may be relegated to the neighbourhood of *Thais*.

* Smith, Zool. Coll. Alert, p.46, Pl. v., f.D.

† Smith, Journ. Linn. Soc., Zool. xii. 1876, p.540, Pl. xxx., f.3:(?)=
Lataxiena lataxiena Jousseau, Bull. Soc. Zool. France, viii. 1883, p.188,
Pl. x., f.1.

PYRENE ALBINA Kiener.

Columbella albina Kiener, Coq. Viv. 1841, p.32, Pl. xiii., f.4; *id.*, Hervier, Journ. de Conch. xlvii, 1899, p.320; *id.*, Pace, *op. cit.* l. 1902, p.416.

Two specimens, from the Hope Islands, are the first examples of this species to be recognised from Australia.

Another member of the genus, new to Australia, is *Pyrene peasei* v. Martens & Langkavel,* which was collected at Lizard Island, not far from the Hope Islands, by Dr. A. E. Finckh.

RETUSA IMPASTA, n.sp.

(Plate xlv., fig.101.)

Shell rather solid, subcylindrical, a crown marked off by a sharp constriction below the summit, faintly constricted at the waist and gently swollen below, anteriorly truncated, posteriorly rounded, base imperforate. Colour dull white or faintly tinged with yellow. Sculpture: about forty fine, close, longitudinal threads traverse the whole length of the shell. These are cut by about thirty sharp, narrow, concentric grooves, which strengthen on crossing the crown and penetrate the apical crater. Aperture a narrow slit for the anterior two-thirds, then enlarging to a pyriform orifice; inner lip overlaid with a substantial callus. Summit-perforation one-fifth of its diameter, deep and narrow. Length 3.45; breadth 1.35 mm.

An abundant species off the Hope Islands, in 5-10 fathoms. Off the Palm Islands, in 15 fathoms, I found it equally common. While serving as naturalist to the Geographical Society's Expedition to New Guinea, Mr. W. W. Froggatt gathered specimens at Prince of Wales Island, Torres Strait, in 1885.

A member of the "starved" section of *Retusa*; this appears to be nearest to *Utriculus famelicus* Watson,† but has a rougher sculpture, a narrower waist, and a prominent collar.

* Mart. & Langk., Donum Bismarek., 1871, p.23, Pl.i., f.17; Pace, Journ. de Conch. l. 1902, p.419.

† Chall. Rep. Zool. xv. 1886, Pl. xlix., f.1, p.653.

RETUSA PHARETRA, n.sp.

(Plate xliv., fig.102.)

Shell small, rather thin, cylindrical, abruptly truncate above, straight at the sides and produced below, narrowly umbilicate. Colour cream, sometimes alternating with dull white in five or six indefinite belts of equal breadth. Sculpture: the whole surface is cut into small facets by the crossing at right angles of fine, close, longitudinal threads and spiral grooves. These grooves cease near the summit, and leave uncut the threads that cross the crown and descend into the apical crater. Aperture rising above the last whorl, narrow and straight for the upper two-thirds, then dilating. The columella rather broadly reflected over the perforation. Apical crater one-third of the shell's diameter. Length 2.25; breadth 1.0 mm.

A few specimens, from 5-10 fathoms, Hope Island, and one from Mast Head Island. In texture, the novelty is intermediate between *R. bizona* A. Adams, and *R. granosa* Brazier, but it is smaller and more cylindrical than either.

CYLICHNA COLLYRA Melvill.

Cylichna collyra Melvill, Proc. Malacol. Soc. vii. 1906, p.79, Pl. viii., f.25.

Mr. Gabriel lent me an example of this from the Gulf of Oman, determined by the author of the species. A few examples, from 5-10 fathoms, off the Hope Islands, prove to be identical.

PSEUDOCEROS KENTII von Graff.

Pseudoceros kentii Saville Kent, Great Barrier Reef, 1893, p.362, Pl. xiii., f.1; *id.*, Haswell, Trans. Linn. Soc., Zool., 2nd Ser., ix. 1907, p.465.

On the north arm of Cairns Reef, at low tide, we captured an *Hexabranchnus marginatus** Quoy & Gaimard, which we brought alive to the "Lotus." We had on board a copy of Kent's

* Bergh, Siboga Expedition, Livr. xxv. 1905, Pl. i., f.1,2.

“Barrier Reef,” and, when the mollusc retracted the gill-plumes, its identity with the figure of the so-called planarian was clear to all the party.

EXPLANATION OF PLATES XXXVI.-XLIV.

Plate xxxvi.

- Figs. 1-4.—*Chlamys corymbiatus* Hedley.
 Figs. 5-8.—*Cuna praecalva* Hedley.
 Figs. 9-10.— „ *capillacea* Hedley.
 Figs. 11-12.—*Rochefortia viastellata* Hedley.
 Figs. 13-15.—*Sportella sperabilis* Hedley.

Plate xxxvii.

- Fig. 16.—*Phacoides eucosmia* Dall.
 Fig. 17.— „ *rugosus* Hedley.
 Fig. 18.— „ *sperabilis* Hedley.
 Figs. 19-21.—*Cardium lobulatum* Deshayes.
 Figs. 22-23.—*Sportella jubata* Hedley.
 Figs. 24-27.—*Gafrarium catillus* Hedley.

Plate xxxviii.

- Figs. 28-29.—*Chione scandularis* Hedley.
 Figs. 30-32.—*Tellina ctesiaca* Hedley.
 Fig. 33.—*Arcopagia dapsilis* Hedley.
 Figs. 34-36.—*Semele isosceles* Hedley.
 Figs. 37-39.—*Theora nasuta* Hedley.

Plate xxxix.

- Figs. 40-42.—*Liotia tribulationis* Hedley.
 Figs. 43-45.— „ *anxia* Hedley.
 Figs. 46-48.—*Cyclostrema anxium* Hedley.

Plate xl.

- Figs. 49-51.—*Cyclostrema torridum* Hedley.
 Fig. 52.—*Obtortio vulnerata* Hedley.
 Figs. 53-54.—*Triphora tribulationis* Hedley.
 Fig. 55.—*Cerithiopsis pinea* Hedley.
 Fig. 56.— „ *telegraphica* Hedley.
 Fig. 57.— „ *tribulationis* Hedley.
 Fig. 58.— „ *vestiana* Hedley.
 Figs. 59-60.—*Epitonium koskinum* Hedley.



Plate xli.

- Fig. 61. — *Vermicularia deposita* Hedley.
 Fig. 62. — *Odostomia abjecta* Hedley.
 Fig. 63. — ,, *anxia* Hedley.
 Figs. 64-65. — ,, *articulata* Hedley.
 Fig. 66. — ,, *chorea* Hedley.
 Fig. 67. — ,, *gumia* Hedley.
 Figs. 68-69. — ,, *maccullochi* Hedley.
 Fig. 70. — ,, *migma* Hedley.
 Fig. 71. — ,, *sperabilis* Hedley.
 Fig. 72. — ,, *tribulationis* Hedley.

Plate xlii.

- Fig. 73. — *Odostomia adipata* Hedley.
 Fig. 74. — *Turbonilla gabrieli* Hedley.
 Fig. 75. — ,, *perscalata* Hedley.
 Figs. 76-77. — ,, *taylori* Hedley.
 Fig. 78. — ,, *tenuissima* Hedley.
 Figs. 79-80. — ,, *tribulationis* Hedley.
 Fig. 81. — *Glyphostoma tribulationis* Hedley.

Plate xliii.

- Fig. 82. — *Odostomia laquearia* Hedley.
 Fig. 83. — *Eulima conaminis* Hedley.
 Fig. 84. — ,, ,, var. *angulata* Hedley.
 Fig. 85. — ,, *piperita* Hedley.
 Figs. 86-87. — *Marginella anxia* Hedley.
 Fig. 88. — *Glyphostoma aliciae* Melvill & Standen.
 Fig. 89. — *Mangelia anxia* Hedley.

Plate xliv.

- Fig. 90. — *Mangelia calcata* Hedley.
 Fig. 91. — ,, *gracilentia* Reeve.
 Fig. 92. — ,, *infulata* Hedley.
 Fig. 93. — ,, *naufraga* Hedley.
 Figs. 94-95. — ,, ,, var. *conata* Hedley.
 Figs. 96-97. — ,, *perissa* Hedley.
 Figs. 98-99. — ,, *rigorata* Hedley.
 Fig. 100. — *Nassaria mordica* Hedley.
 Fig. 101. — *Retusa impasta* Hedley.
 Fig. 102. — ,, *pharetra* Hedley.